HSI and SE Technical Collaboration for DoD Acquisition

The Multi-Service Human Systems Integration Framework (HSIF)

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Presentation Outline

- HSI Process Challenges
- HSI Process Opportunities: The HSI Framework (HSIF)
- HSIF Evolution
- HSIF Objectives
  1. Develop an interactive application
  2. Define and scope activities for an HSI Integrator Role
  3. Vet and adjudicate HSIF design and content, refine use cases
- Analysis Vision

HSI Process Challenges

- HSI and Systems Engineering have established technical processes
- Coordination and integration challenges
  - Overflow of HSI-related policy, standards, and guidance
  - Inconsistent application of HSI guidance and best practices
  - Stove-piped technical efforts within HSI domains
- Impacts
  - Loose synchronization with SETR Events and Acquisition Milestones
  - Missed opportunities to reduce HSI re-work via collaboration
  - Misalignment of HSI technical priorities with program/project cost, schedule, and performance

Challenge: Overflow of HSI-related policy, standards, guidance

A sample of HSI-related documents by Service

Service	Name	Title
DoD	DAG	Defense Acquisition Guidebook
DoD	See Title	DoD Joint Software Systems Safety Engineering Handbook
DoD	DoDD 5000.01	The Defense Acquisition System
DoD	DoDI 4715.1E	Environment, Safety, and Occupational Health
DoD	DoDI 5000.02	Operation of the Defense Acquisition System
DoD	MIL-STD-1472G	Department of Defense Design Criteria Standard Human Engineering
DoD	MIL-STD-46855A	Human Engineering Requirements for Military Systems, Equipment, and Facilities
DoD	MIL-STD-882	Department of Defense System Safety

Service	Name	Title
Air Force	AFD-090121-054	Air Force Human Systems Integration Handbook
Air Force	AFD-090121-055	USAF HSI Requirements Pocket Guide
Air Force	AFD-100122-034	Human Systems Integration in Acquisition: Acquisition Phase Guide
Air Force	AFI 38-201	Management of Manpower Requirements and Authorizations
Air Force	AFI 63-101/20-101	Integrated Life Cycle Management
Air Force	AFI 63-1201	Life Cycle Systems Engineering
Air Force	AFI 99-103	Capabilities-based Test and Evaluation
Air Force	AFMAN 63-119	Certification of System Readiness for Dedicated Operational Testing
Air Force	AFPD 63-1/20-1	Integrated Life Cycle Management
Air Force	AFPD 91-2	Safety Programs

Challenge: Overflow of HSI-related policy, standards, guidance (cont.)

Service	Name	Title
Navy	NETCINST 1510.4	Naval Education and Training Command Job Duty Task Analysis User Guide
Navy	OPNAVINST 5100.19E (vol 1)	Volume 1: Navy Safety and Occupational Health Program Manual for Forces Afloat
Navy	OPNAVINST 5100.24B	Navy System Safety Program Policy
Navy	OPNAVINST 5310.23	Navy Personnel Human Systems Integration (NAVPRINT)
Navy	SECNAVINST 5000.2E	Department of the Navy Implementation and Operation of the Defense Acquisition System and the Joint Capabilities Integration and Development System
Navy	SECNAVINST 5100.10J	Department of the Navy Policy for Safety, Mishap Prevention, Occupational Health and Fire Protection Programs
Navy	SPAWARINST 5400.3	Systems Engineering Technical Review Process Handbook

Service	Name	Title
Army	AR 40-5	Preventive Medicine
Army	AR 40-10	Health Hazard Assessment Program in Support of the Army Materiel Acquisition Decision Process
Army	AR 70-75	Survivability of Army Personnel and Materiel
Army	AR 71-9	Warfighting Capabilities Determination
Army	AR 385-10	The Army Safety Program
Army	AR 570-4	Manpower Management
Army	AR 602-2	Manpower and Personnel Integration (MANPRINT) in the System Acquisition Process

Service	Name	Title
NASA	NASA-JSC-65995	Commercial Human Systems Integration Processes (CHSIP)
NASA	NASA-STD-3001 (vol1)	Volume 1: NASA Space Flight Human System Standard

HSI documentation themes

- When are these documents relevant?
- What can be learned from other services? From non-

HSI Process Opportunities: The HSI Framework (HSIF)

- The HSIF consists of process diagrams that display HSI Domain activities across the DoD Acquisition Life Cycle
  - Includes references, products, cross-domain collaborations
  - Extracted from HSI-related guidance, standards, and best practices across DoD Services and non-DoD organizations
  - Displayed in a timeline format, referenced to Systems Engineering Technical Reviews and Acquisition milestones
- HSI Opportunities and HSIF Benefits
  - Serves as a coordinating mechanism between HSI domains
  - Makes HSI tasks and products explicit to other stakeholders: Program Managers, Technical Authority, System Engineers, and Prime Contractor
  - Leverages HSI best practices across services, organizations

HSIF Evolution: Precursor HSI Methods

HSI ACTIVITIES GUIDE

Note 1. This guide was developed to assist the program manager in determining the HSI acquisition requirements. This guide may be tailored to fit the needs of each program.

HSI Activities by Acquisition Phase	0	I	II	III
Identify mission and function requirements	X			
Provide HSI inputs to new system/NDI/PI decision	X			
Identify HSI constraints and issues	X			
Establish the HSI data base	X			
Identify HSI high cost drivers and lessons learned from predecessor system	X			
Identify system requirements that impact on the human role	X	X	X	
Identify HSI technology requirements	X			
Identify tools/data bases/analyses/methodologies to be employed	X		X	
Provide HSI inputs to the assessment of alternative concepts/designs	X	X		
Develop HSI exit criteria considerations for each milestone	X	X	X	X
Conduct HSI studies, analyses, and tradeoffs	X	X	X	X
Conduct HSI front-end analysis for each alternative concept/design	X			
Describe how HFE and SS/HH lessons learned will be applied	X			
Identify HSI technical risks for each alternative concept/design	X			
Identify manpower requirements and state manpower sources	X	X	X	X
Define requirements for new occupational specialties/high quality personnel	X	X	X	X
Identify training requirements and evaluate training system effectiveness	X	X	X	X
Provide HSI assessment and tradeoff of alternative concepts/designs	X			
Provide HSI inputs to life-cycle costs	X	X	X	
Budget MPT life-cycle costs	X	X	X	
Identify and manage HSI cost, schedule and design risk areas	X	X		
Incorporate HSI considerations into the acquisition strategy	X	X	X	
Identify HSI test and evaluation requirements	X	X	X	
Identify HSI inputs to procurement packages	X	X	X	X
Provide HSI inputs to affordability constraints	X	X		
Provide HSI inputs to affordability assessments	X	X	X	
Provide HSI inputs to the Concept Baseline	X			
Prepare the HSI plan		X		
Provide earlier phase products which are required in Phase I		X		
Refine manpower, personnel and training requirements		X	X	X
Prepare the Manpower Estimate (ME)		X	X	
Provide HSI inputs to the Development Baseline		X		
Conduct HSI test and evaluation on prototypes		X		
Review/update HSI plan			X	X
Provide earlier phase products which are required in Phase II			X	
Provide HSI inputs to the Proposed Production Baseline			X	
Provide earlier phase products which are required in Phase III				X
Conduct HSI follow-on test and evaluation				X
Include HSI requirements into engineering change proposals (ECPs)				X
Acquire HSI lessons learned	X	X	X	X

Department of the Navy (DON) Defense Acquisition Deskbook, Feb 1997

HSI Activities Guide

- 40 HSI activities across 4 acquisition phases
- Developed to be tailored by the PM

Acquisition Phases:

- **Phase 0:** Concept Exploration
- **Phase I:** Program Definition and Risk Reduction
- **Phase II:** Engineering and Manufacturing Development
- **Phase III:** Production, Fielding/Deployment, and Operational Support

- Identifying phase-dependent HSI activities has been done as early as 1997
- The HSIF combines and presents existing guidance in new and useful ways to accommodate changes in acquisition strategies and HSI policy

HSIF Evolution: Analysis of existing HSI Process Tools

Tools	Similarities	Differences
DAU Timeline	• Based on acquisition lifecycle • Linked to SE processes • Does not identify much HSI process	• Does not outline cross domain collaboration
Air Force HSI Guidance Documents	• Based on acquisition lifecycle • Linked to SE processes • Tool for HSI practitioners • Identifies inputs and outputs	• Not interactive • Text based • Does not outline cross domain collaboration
Naval Postgraduate School Defense Acquisition Framework	• Based on acquisition lifecycle	• Developed as an educational tool for coursework
Naval Ordnance Safety and Security Activity – Web-based Interactive Safety Environment (WISE)	• Based on acquisition lifecycle	• Solely dedicated to safety domain • Does not outline cross domain collaboration
NASA: H-FAST	• Process based	• More like a knowledge management tool • Focus on HFE • Does not outline cross domain collaboration

HSIF Evolution: Collaboration w/ Navy HSI (SPAWAR)

Date	Version	Description
Mar 2009	HSI Practitioner's Guide	A **43-page HSI guide** for integrating human factors into DoD acquisition lifecycle to better communicate consistent program support activities
May 2009	HSI Framework 1.0	**Visualization of the practitioner guide** activities over the acquisition lifecycle, to include MPT domain activities
Sep 2009	HSI Framework 1.3	**Added HSI domain collaboration points**; drafted Safety and Occ Health domain activities; expanded integrated acquisition row to include documentation
Nov 2010	HSI Framework 1.4.1	**Added input documentation and output products** to each activity box for HFE row
Dec 2011	HSI Framework 1.5	Refined activity boxes to align with SPAWAR **HSI Work Package development**

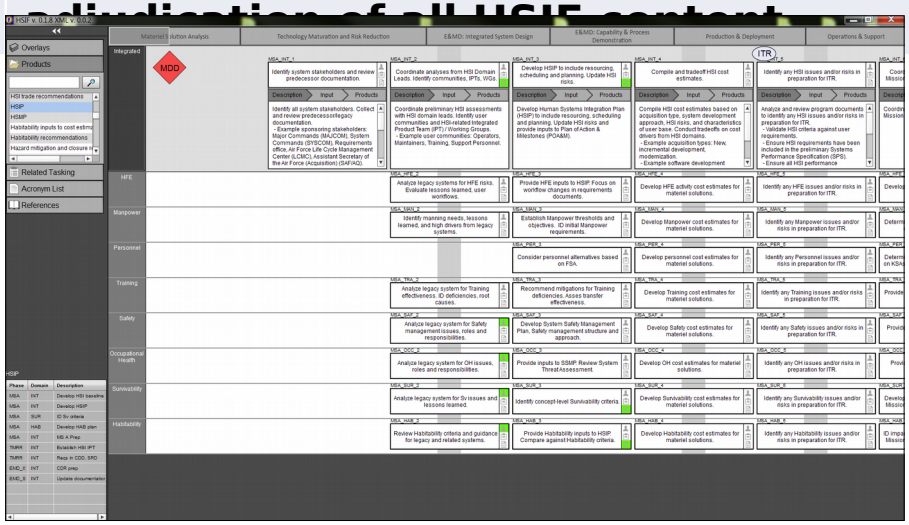
Early HSIF focus areas
- HFE and MPT
- IT-related Navy

HSIF Evolution: Collaboration w/ USAF HSI (711th HPW)

Date	Version	Description
Feb 2013	HSI Framework 2.0	**Included Safety, Occ Health, Survivability, and Habitability domain activities** in collaboration with USAF HSI (711th HPW)
June 2013 - Present	HSI Framework 3.0	Developed an **HSIF interactive application**. Defined and scoped technical activities for an **HSI Integrator Role.** Conducted a full **vetting and**

HSIF v3.0*

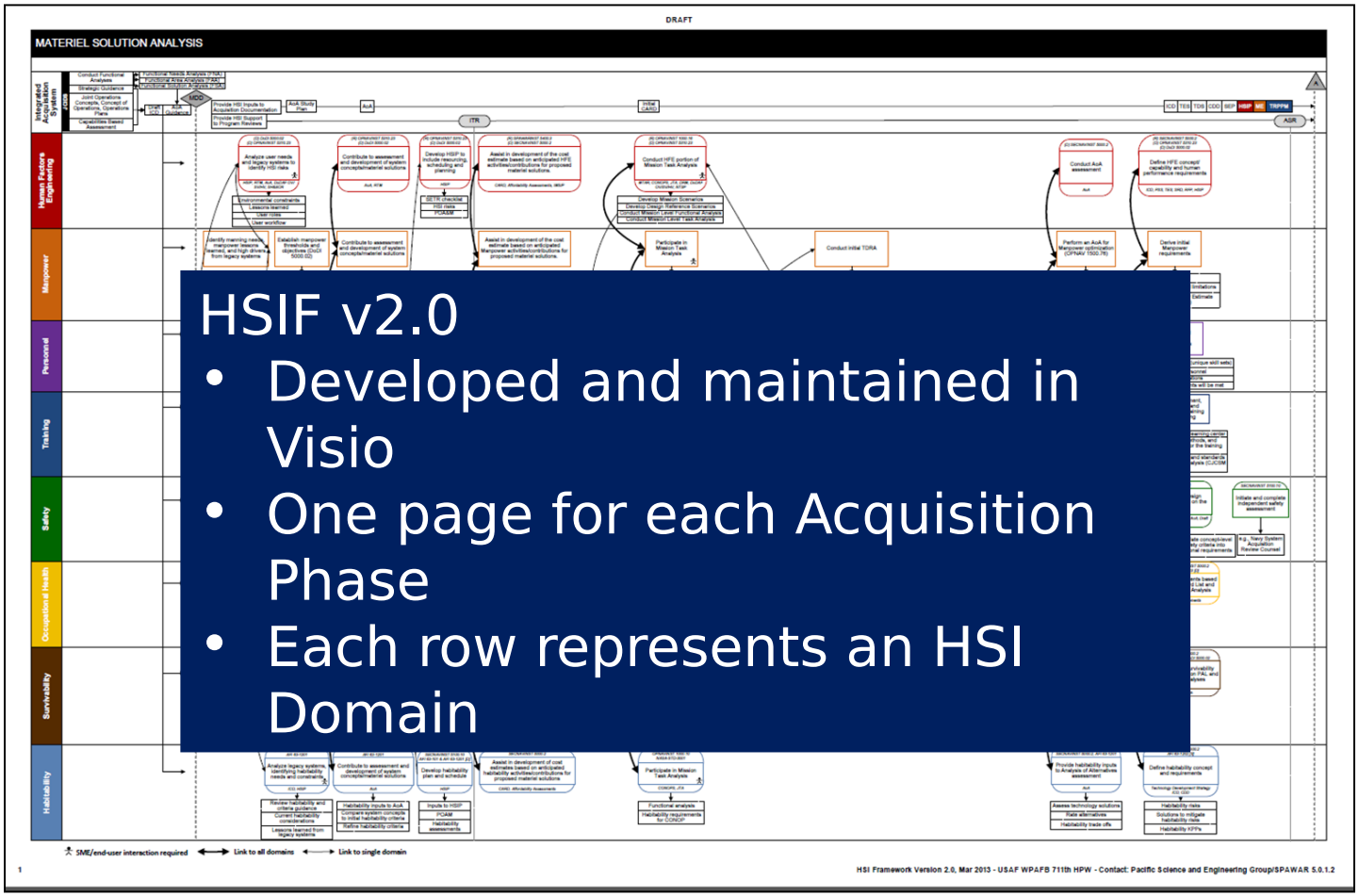
- 8 HSI Domains, plus HSI Integrator Role
- 337 Activities across 6 Acquisition Phases
- 163 Unique References
- 235 Unique Products



*As of 9 May 2014

HSIF v2.0: Static version

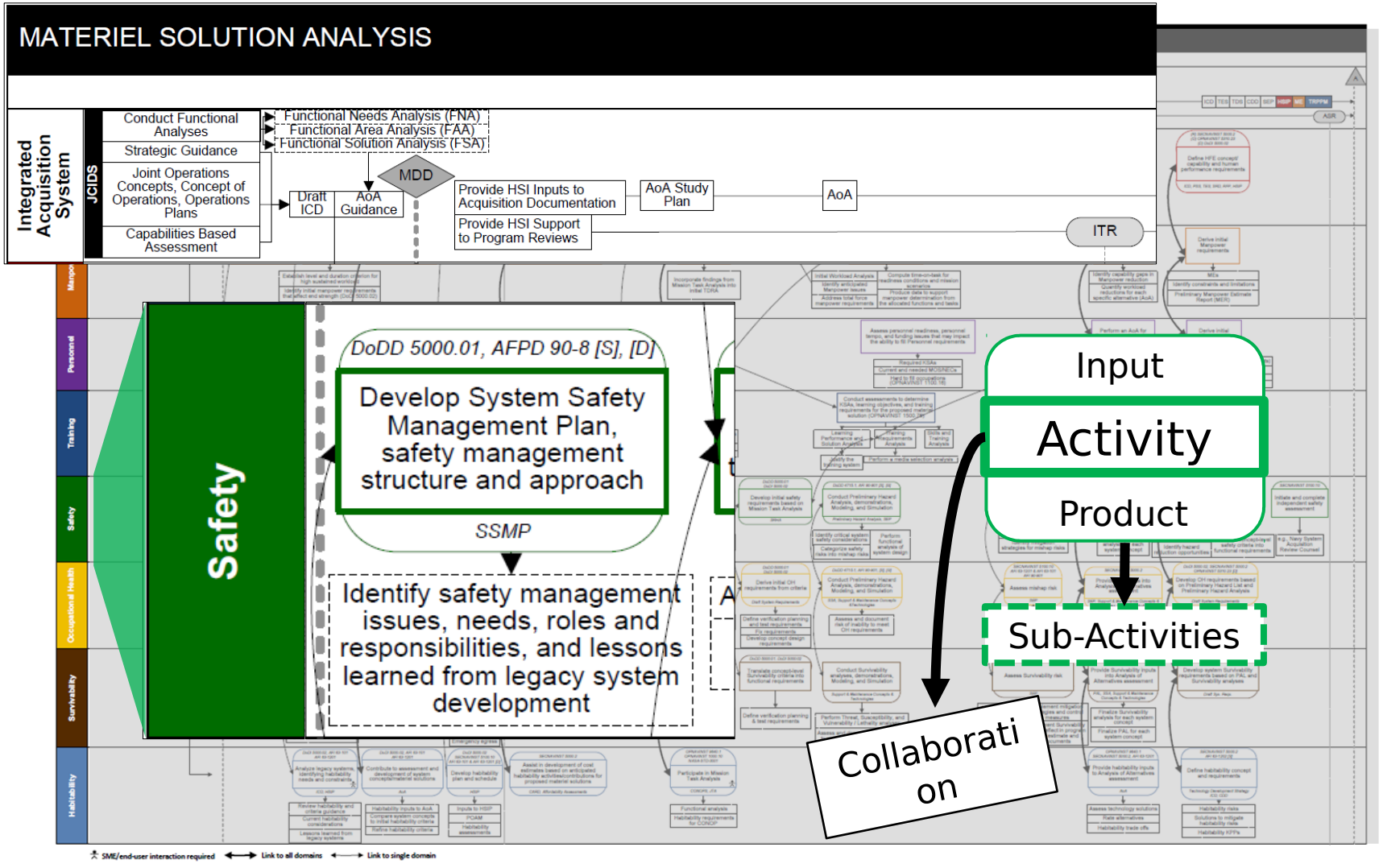
Habitability	Survivability	Occupational Health	Safety	Training	Personnel	Manpower	Human Factors Engineering	Integrated Acquisition System
								JCIDS



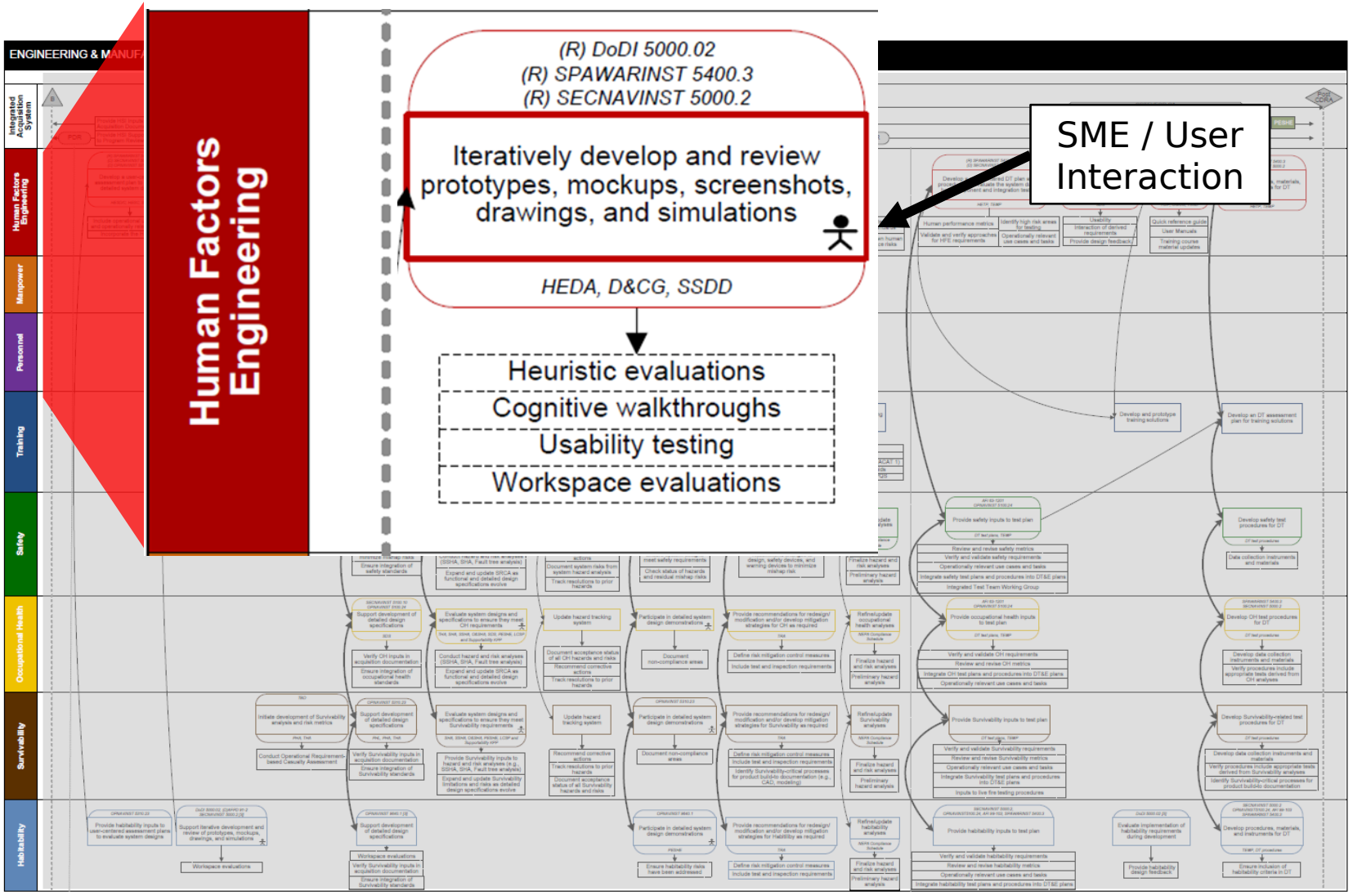
HSIF v2.0

- Developed and maintained in Visio
- One page for each Acquisition Phase
- Each row represents an HSI Domain

HSIF v2.0: Static version (cont.)



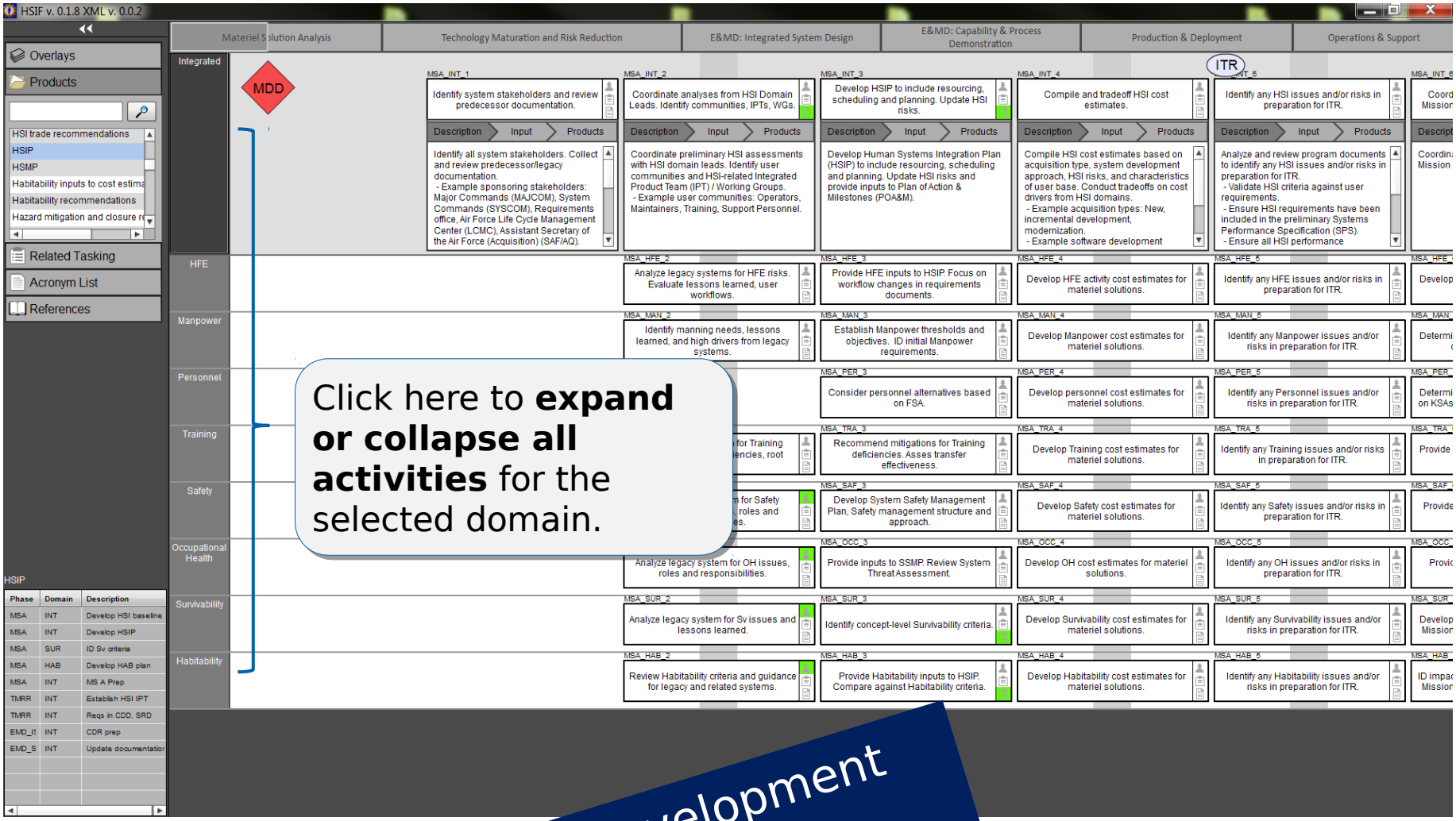
HSIF v2.0: Static version (cont.)



HSIF v3.0 Objectives

1. **Develop an HSIF interactive application**
   - Mitigate limitations of static visualization (v2.0): Clutter, accessibility, configuration management, expansion
   - Add interactive features: Navigation, information access, product search, reference search, Quick Reference Guide
   - Serves as a resource for the acquisition community: AFHSIO, PEOs, SPAWAR, Program Management Offices, Defense Acquisition University
2. Define and scope activities for an HSI Integrator Role
3. Vet and adjudicate HSIF design and content, refine use cases

HSIF Walkthrough: Overview

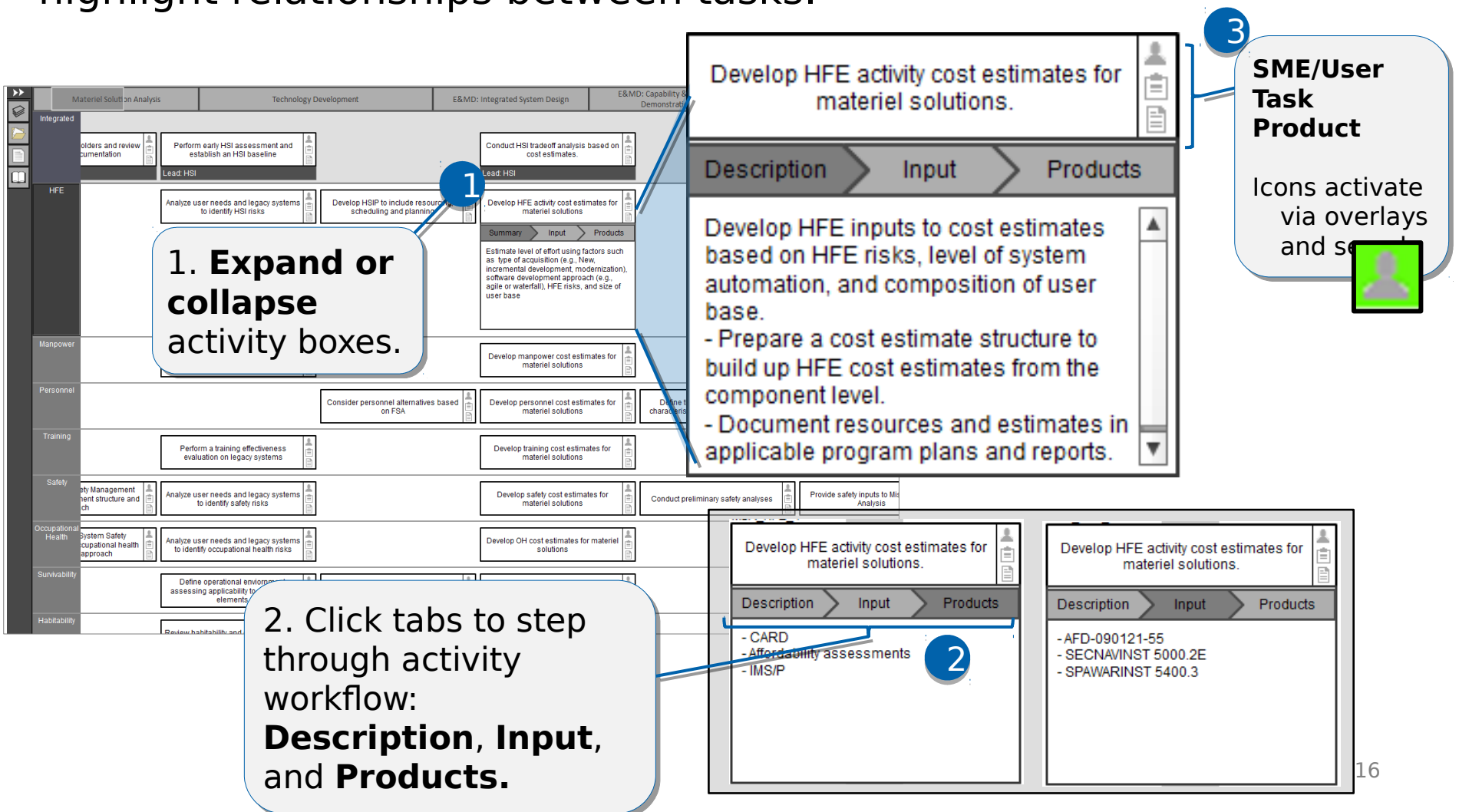

HSIF v. 0.1.8 XML v. 0.0.2
Overlays
Products
HSI trade recommendations
HSIP
HSMP
Habitability inputs to cost estima
Habitability recommendations
Hazard mitigation and closure r
Related Tasking
Acronym List
References
Materiel Solution Analysis
Technology Maturation and Risk Reduction
E&MD: Integrated System Design
E&MD: Capability & Process Demonstration
Production & Deployment
Operations & Support
Integrated
MDD
ITR
HFE
Manpower
Personnel
Training
Safety
Occupational Health
Survivability
Habitability
Description
Input
Products
Identify system stakeholders and review predecessor documentation.
Identify all system stakeholders. Collect and review predecessor/legacy documentation.
- Example sponsoring stakeholders: Major Commands (MAJCOM), System Commands (SYSCOM), Requirements office, Air Force Life Cycle Management Center (LCMC), Assistant Secretary of the Air Force (Acquisition) (SAF/AQ).
Coordinate analyses from HSI Domain Leads. Identify communities, IPTs, WGs.
Coordinate preliminary HSI assessments with HSI domain leads. Identify user communities and HSI-related Integrated Product Team (IPT) / Working Groups.
- Example user communities: Operators, Maintainers, Training, Support Personnel.
Develop HSIP to include resourcing, scheduling and planning. Update HSI risks.
Develop Human Systems Integration Plan (HSIP) to include resourcing, scheduling and planning. Update HSI risks and provide inputs to Plan of Action & Milestones (POA&M).
Compile and tradeoff HSI cost estimates.
Compile HSI cost estimates based on acquisition type, system development approach, HSI risks, and characteristics of user base. Conduct tradeoffs on cost drivers from HSI domains.
- Example acquisition types: New, incremental development, modernization.
- Example software development
Identify any HSI issues and/or risks in preparation for ITR.
Analyze and review program documents to identify any HSI issues and/or risks in preparation for ITR.
- Validate HSI criteria against user requirements.
- Ensure HSI requirements have been included in the preliminary Systems Performance Specification (SPS).
- Ensure all HSI performance
Analyze legacy systems for HFE risks. Evaluate lessons learned, user workflows.
Provide HFE inputs to HSIP. Focus on workflow changes in requirements documents.
Develop HFE activity cost estimates for materiel solutions.
Identify any HFE issues and/or risks in preparation for ITR.
Identify manning needs, lessons learned, and high drivers from legacy systems.
Establish Manpower thresholds and objectives. ID initial Manpower requirements.
Develop Manpower cost estimates for materiel solutions.
Identify any Manpower issues and/or risks in preparation for ITR.
Consider personnel alternatives based on FSA.
Develop personnel cost estimates for materiel solutions.
Identify any Personnel issues and/or risks in preparation for ITR.
Recommend mitigations for Training deficiencies. Asses transfer effectiveness.
Develop Training cost estimates for materiel solutions.
Identify any Training issues and/or risks in preparation for ITR.
Develop System Safety Management Plan, Safety management structure and approach.
Develop Safety cost estimates for materiel solutions.
Identify any Safety issues and/or risks in preparation for ITR.
Analyze legacy system for OH issues, roles and responsibilities.
Provide inputs to SSMP. Review System Threat Assessment.
Develop OH cost estimates for materiel solutions.
Identify any OH issues and/or risks in preparation for ITR.
Analyze legacy system for Sv issues and lessons learned.
Identify concept-level Survivability criteria.
Develop Survivability cost estimates for materiel solutions.
Identify any Survivability issues and/or risks in preparation for ITR.
Review Habitability criteria and guidance for legacy and related systems.
Provide Habitability inputs to HSIP. Compare against Habitability criteria.
Develop Habitability cost estimates for materiel solutions.
Identify any Habitability issues and/or risks in preparation for ITR.
HSIP
Phase
Domain
Description
MSA INT Develop HSI baseline
MSA INT Develop HSIP
MSA SUR ID Sv criteria
MSA HAB Develop HAB plan
MSA INT MS A Prep
TMRR INT Establish HSI IPT
TMRR INT Reqs in CDD, SRD
EMD_I INT CDR prep
EMD_S INT Update documentatior

Click here to **expand or collapse all activities** for the selected domain.

Development Build

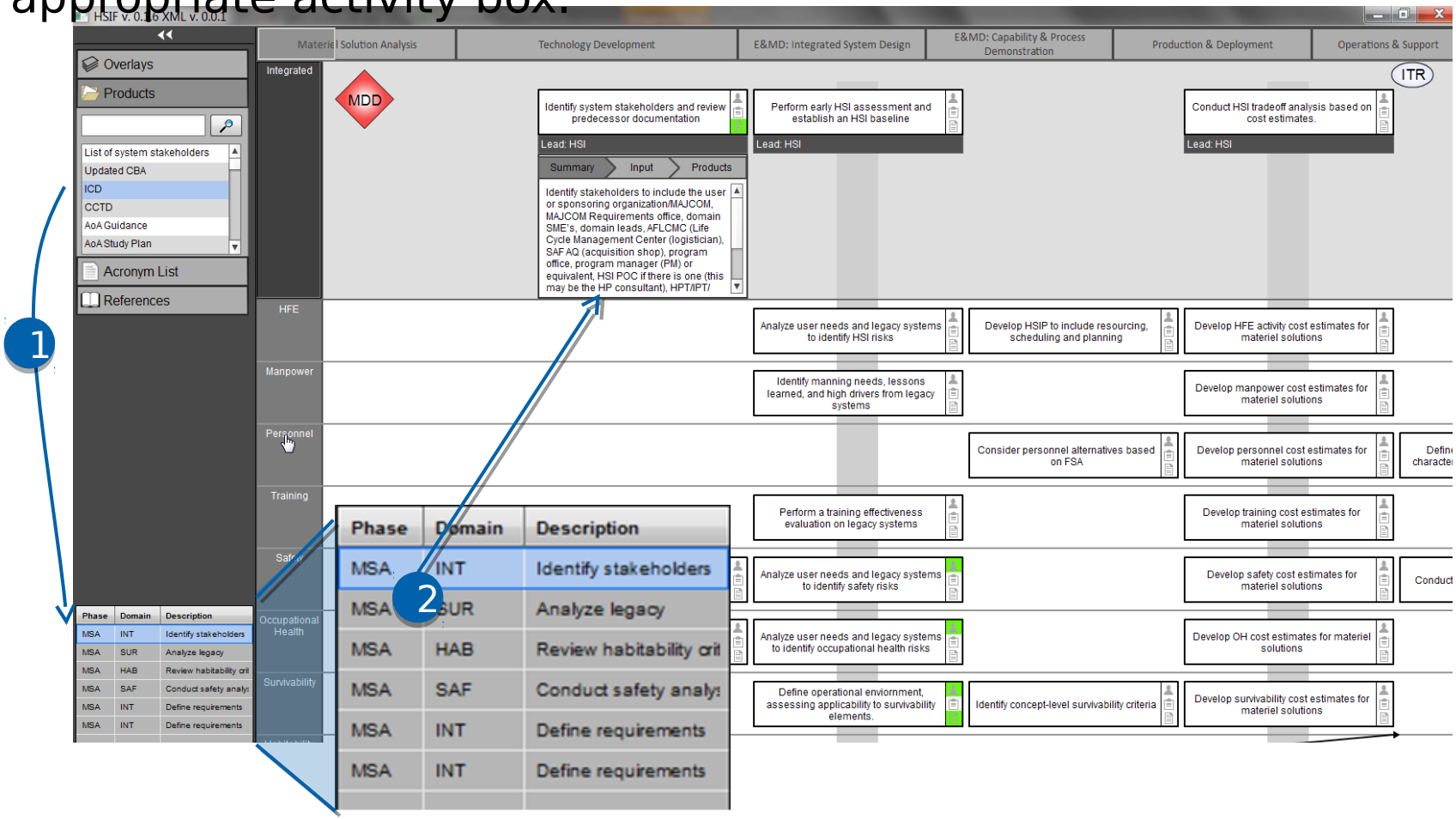
HSIF Walkthrough: Activities

Activity boxes display task description, inputs and products. Icons highlight relationships between tasks.


Develop HFE activity cost estimates for materiel solutions.
Description
Input
Products
Develop HFE inputs to cost estimates based on HFE risks, level of system automation, and composition of user base.
- Prepare a cost estimate structure to build up HFE cost estimates from the component level.
- Document resources and estimates in applicable program plans and reports.
3
SME/User Task Product
Icons activate via overlays and s
1
1. Expand or collapse activity boxes.
Materiel Solution Analysis
Technology Development
E&MD: Integrated System Design
Integrated
HFE
Manpower
Personnel
Training
Safety
Occupational Health
Survivability
Habitability
Perform early HSI assessment and establish an HSI baseline
Lead: HSI
Conduct HSI tradeoff analysis based on cost estimates.
Lead: HSI
Analyze user needs and legacy systems to identify HSI risks
Develop HFE activity cost estimates for materiel solutions
Summary
Input
Products
Estimate level of effort using factors such as type of acquisition (e.g., New, incremental development, modernization), software development approach (e.g., agile or waterfall), HFE risks, and size of user base
Develop manpower cost estimates for materiel solutions
Consider personnel alternatives based on FSA
Develop personnel cost estimates for materiel solutions
Perform a training effectiveness evaluation on legacy systems
Develop training cost estimates for materiel solutions
Analyze user needs and legacy systems to identify safety risks
Develop safety cost estimates for materiel solutions
Conduct preliminary safety analyses
Analyze user needs and legacy systems to identify occupational health risks
Develop OH cost estimates for materiel solutions
2
Develop HFE activity cost estimates for materiel solutions.
Description
Input
Products
- CARD
- Affordability assessments
- IMS/P
Develop HFE activity cost estimates for materiel solutions.
Description
Input
Products
- AFD-090121-55
- SECNAVINST 5000.2E
- SPAWARINST 5400.3
2. Click tabs to step through activity workflow: Description, Input, and Products.

HSIF Walkthrough: Control Panel

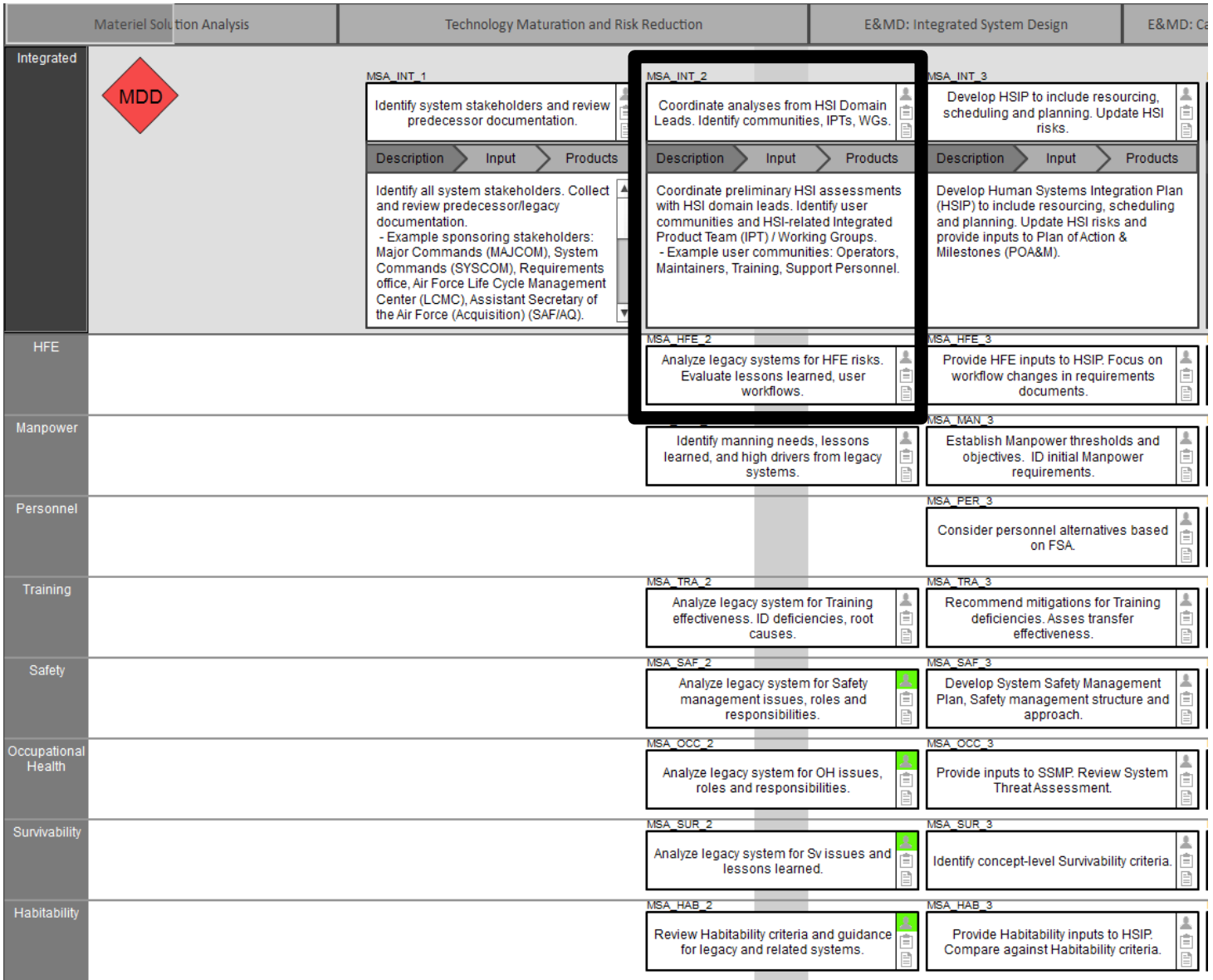
Product Search, Acronym List, and downloadable References are located in the Control Panel. Search results are linked to the appropriate activity box.


HSIF v. 0.1.6 XML v. 0.0.1
Overlays
Products
List of system stakeholders
Updated CBA
ICD
CCTD
AoA Guidance
AoA Study Plan
Acronym List
References
Material Solution Analysis
Technology Development
E&MD: Integrated System Design
E&MD: Capability & Process Demonstration
Production & Deployment
Operations & Support
Integrated
MDD
ITR
Identify system stakeholders and review predecessor documentation
Lead: HSI
Perform early HSI assessment and establish an HSI baseline
Lead: HSI
Conduct HSI tradeoff analysis based on cost estimates.
Lead: HSI
Summary
Input
Products
Identify stakeholders to include the user or sponsoring organization/MAJCOM, MAJCOM Requirements office, domain SME's, domain leads, AFLCMC (Life Cycle Management Center (logistician), SAF AQ (acquisition shop), program office, program manager (PM) or equivalent, HSI POC if there is one (this may be the HP consultant), HPT/IPT/
HFE
Analyze user needs and legacy systems to identify HSI risks
Develop HSIP to include resourcing, scheduling and planning
Develop HFE activity cost estimates for materiel solutions
Manpower
Identify manning needs, lessons learned, and high drivers from legacy systems
Develop manpower cost estimates for materiel solutions
Personnel
Consider personnel alternatives based on FSA
Develop personnel cost estimates for materiel solutions
Training
Perform a training effectiveness evaluation on legacy systems
Develop training cost estimates for materiel solutions
Safety
Analyze user needs and legacy systems to identify safety risks
Develop safety cost estimates for materiel solutions
Occupational Health
Analyze user needs and legacy systems to identify occupational health risks
Develop OH cost estimates for materiel solutions
Survivability
Define operational enviornment, assessing applicability to survivability elements.
Identify concept-level survivability criteria
Develop survivability cost estimates for materiel solutions
Phase Domain Description
MSA INT Identify stakeholders
MSA SUR Analyze legacy
MSA HAB Review habitability crit
MSA SAF Conduct safety analys
MSA INT Define requirements
MSA INT Define requirements
1
2

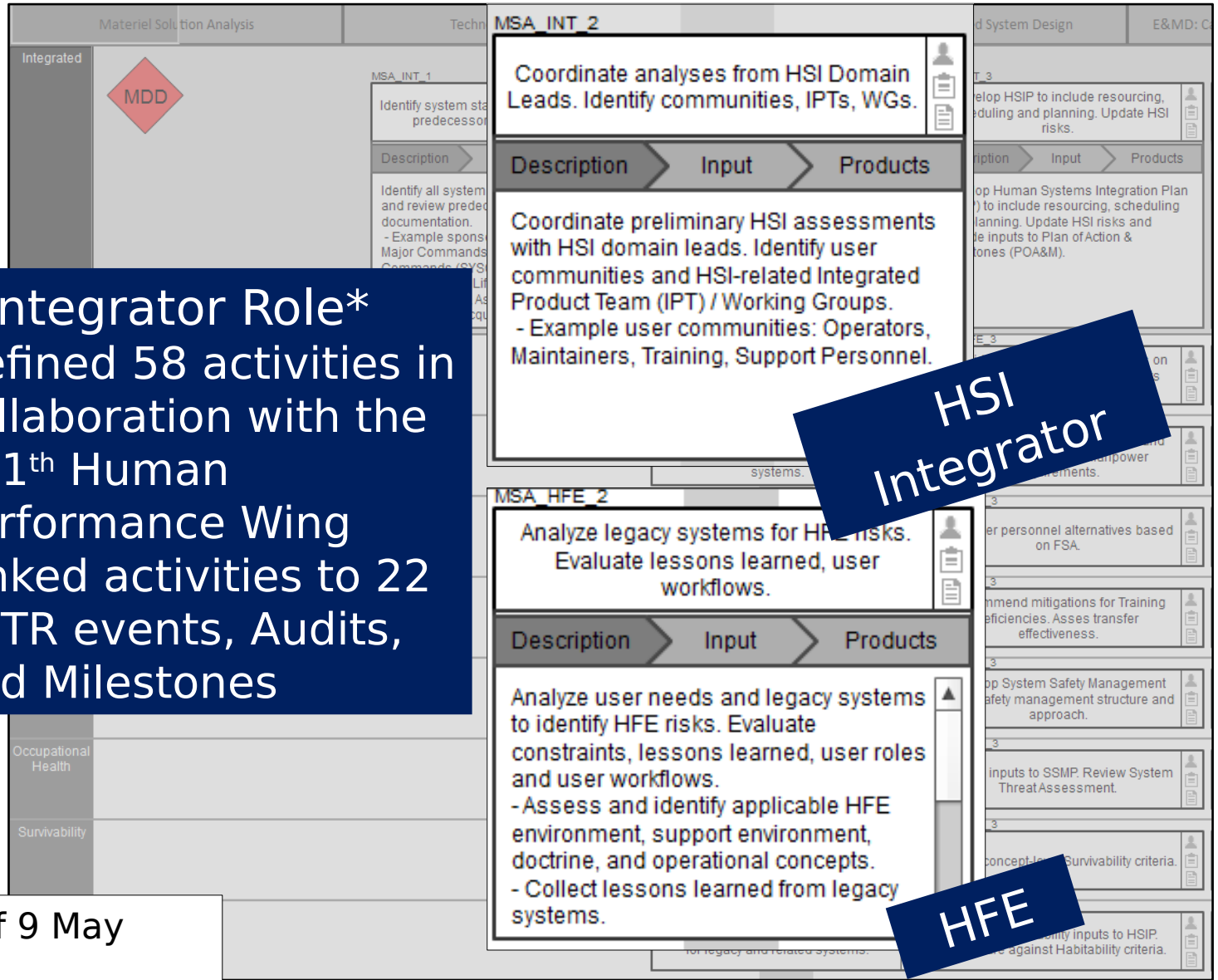
HSIF v3.0 Objectives

1. Develop an HSIF interactive application
2. **Define and scope activities for an HSI Integrator Role**
   - Identify core HSI Integrator Role functions
     - Conduct HSI planning and trade studies
     - Exercise leadership on collaborations between HSI Domains
     - Serve as an interface between HSI and Systems Engineering, especially during SETR and Acquisition Milestone reviews
   - Derive HSI Integrator Role content from core functions, as an additional row in the HSIF visualization
   - Adapt and edit existing HSIF structure and content, re-establish collaborations
3. Vet and adjudicate HSIF design and content, refine use cases

HSI Integrator Role: Overview


Materiel Solution Analysis
Technology Maturation and Risk Reduction
E&MD: Integrated System Design
E&MD: Ca
Integrated
MDD
MSA_INT_1
Identify system stakeholders and review predecessor documentation.
Description
Input
Products
Identify all system stakeholders. Collect and review predecessor/legacy documentation.
- Example sponsoring stakeholders: Major Commands (MAJCOM), System Commands (SYSCOM), Requirements office, Air Force Life Cycle Management Center (LCMC), Assistant Secretary of the Air Force (Acquisition) (SAF/AQ).
MSA_INT_2
Coordinate analyses from HSI Domain Leads. Identify communities, IPTs, WGs.
Description
Input
Products
Coordinate preliminary HSI assessments with HSI domain leads. Identify user communities and HSI-related Integrated Product Team (IPT) / Working Groups.
- Example user communities: Operators, Maintainers, Training, Support Personnel.
MSA_INT_3
Develop HSIP to include resourcing, scheduling and planning. Update HSI risks.
Description
Input
Products
Develop Human Systems Integration Plan (HSIP) to include resourcing, scheduling and planning. Update HSI risks and provide inputs to Plan of Action & Milestones (POA&M).
HFE
MSA_HFE_2
Analyze legacy systems for HFE risks. Evaluate lessons learned, user workflows.
MSA_HFE_3
Provide HFE inputs to HSIP. Focus on workflow changes in requirements documents.
Manpower
Identify manning needs, lessons learned, and high drivers from legacy systems.
MSA_MAN_3
Establish Manpower thresholds and objectives. ID initial Manpower requirements.
Personnel
MSA_PER_3
Consider personnel alternatives based on FSA.
Training
MSA_TRA_2
Analyze legacy system for Training effectiveness. ID deficiencies, root causes.
MSA_TRA_3
Recommend mitigations for Training deficiencies. Asses transfer effectiveness.
Safety
MSA_SAF_2
Analyze legacy system for Safety management issues, roles and responsibilities.
MSA_SAF_3
Develop System Safety Management Plan, Safety management structure and approach.
Occupational Health
MSA_OCC_2
Analyze legacy system for OH issues, roles and responsibilities.
MSA_OCC_3
Provide inputs to SSMP. Review System Threat Assessment.
Survivability
MSA_SUR_2
Analyze legacy system for Sv issues and lessons learned.
MSA_SUR_3
Identify concept-level Survivability criteria.
Habitability
MSA_HAB_2
Review Habitability criteria and guidance for legacy and related systems.
MSA_HAB_3
Provide Habitability inputs to HSIP. Compare against Habitability criteria.

HSI Integrator Role: Collaboration w/ HFE


Materiel Solution Analysis
Integrated
MDD
Occupational Health
Survivability
MSA_INT_2
Coordinate analyses from HSI Domain Leads. Identify communities, IPTs, WGs.
Description
Input
Products
Coordinate preliminary HSI assessments with HSI domain leads. Identify user communities and HSI-related Integrated Product Team (IPT) / Working Groups.
- Example user communities: Operators, Maintainers, Training, Support Personnel.
HSI Integrator
MSA_HFE_2
Analyze legacy systems for HFE risks. Evaluate lessons learned, user workflows.
Description
Input
Products
Analyze user needs and legacy systems to identify HFE risks. Evaluate constraints, lessons learned, user roles and user workflows.
- Assess and identify applicable HFE environment, support environment, doctrine, and operational concepts.
- Collect lessons learned from legacy systems.
HFE

HSI Integrator Role*

- Defined 58 activities in collaboration with the 711th Human Performance Wing
- Linked activities to 22 SETR events, Audits, and Milestones

*As of 9 May 2014

HSIF v3.0 Objectives

1. Develop an HSIF interactive application
2. Define and scope activities for an HSI Integrator Role
3. **Vet and adjudicate HSIF design and content, refine use cases**
   - Develop criteria for integrating HSI content
     - Suitable for HSI practitioners
     - Supports a range of Acquisition programs
     - Clear relationship to SE/Acq/HSI products
     - Practitioner-friendly: Handbooks, Guidance, Data Templates
   - Conduct design review and content Working Groups
     - DCO sessions
     - Adjudication worksheets
   - Refine use cases, conduct V&V on HSIF content

Sample HSIF Use Cases

Role	User Stories
HSI Practitioner	**As an HSI Practitioner,** I need to identify content, timing, and collaboration points for HSI activities within the Acquisition Life Cycle, so that I can support Systems Engineering efforts timely and effectively. • **Multi-service inputs:** As an HSI Practitioner, I need to identify guidance and best practices across services so that I can conduct technical activities efficiently and accurately. • **Product traceability:** As an HSI Practitioner, I need to identify guidance and best practices across services so that I can conduct relevant technical activities. • **Cross-domain collaboration:** As an HSI Practitioner, I need to identify similar technical activities across HSI Domains so that I can leverage HSI analyses efficiently.

Sample HSIF Use Cases (cont.)

Role	User Stories
HSI Integrator	**As an HSI Integrator,** I need to identify collaboration points so that I can engage HSI Domain leads timely and accurately. • **HSI Planning:** As an HSI Integrator, I need to provide guidance to a program on developing a Human Systems Integration Plan (HSIP), so that HSI tasking is planned and scoped to support program needs. • **HSI Requirements:** As an HSI Integrator, I need to identify requirements-related activities, so that I can ensure timely and effective technical support for a SETR.

Sample HSIF Use Cases (cont.)

Role	User Stories
Program Manager	**As a Program Manager,** I need to identify HSI activities for my project or program, so that I can accurately and efficiently plan and scope resources for HSI tasking.
Chief Engineer	**As a Chief Engineer,** I need to identify the timing of HSI activities, so that I can ensure HSI activities are aligned with SE activities in the Integrated Master Schedule.
Technical Authority	**As a Technical Authority,** I need to identify HSI activities to be completed prior to each SETR, so that I can scope the review and provide a relevant HSI evaluation.
Test Lead	**As a Test Lead,** I need to identify HSI analyses and products that involve end users, so that I can leverage operational test cases for T&E events.

Recap of HSIF Benefits

- For HSI Practitioners and System Engineers
  - Provides explicit technical guidance for HSI Domains that is both policy-driven and product-focused
  - Leverages HSI best practices across services, organizations
  - Facilitates and communicates HSI planning among stakeholders
- For Program Managers
  - Provides a list of potential HSI-related activities that can be tailored to manage program technical risks
  - Makes HSI tasks and products explicit to system stakeholders
- For those serving as the HSI Integrator Role
  - Serves as a coordinating mechanism between HSI domains
  - Improved technical alignment to System Engineering Technical Review (SETR) events and Acquisition Milestones

HSIF Analysis Vision

- HSIF Content Expansion
  - **Full HSI representation:** Include additional DoD Services and other government agencies that practice HSI
  - **Continuous content improvement:** Working Groups to elicit active feedback from HSI user base: HSI integrators, HSI practitioners, system engineers, program management
  - **Self-correcting:** Elicit and apply passive feedback from HSIF users
- HSI Integrator Role
  - **Linked to DoD-wide HSI Standards:** Technical tasks derived from Standards, best practices inform Standards
  - **Expanded collaborations:** Library of successful collaboration points available to all HSI Integrators and project/program managers
- HSIF Structure
  - **Adaptable to emergent Acquisition Models**: See

HSIF Analysis Vision: Emergent Acquisition Models

Figure 3. Model 1: Hardware Intensive Program

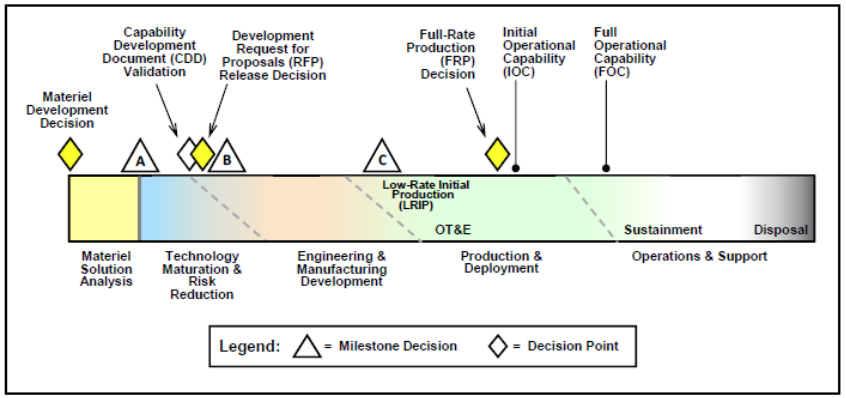


Figure 4. Model 2: Defense Unique Software Intensive Program

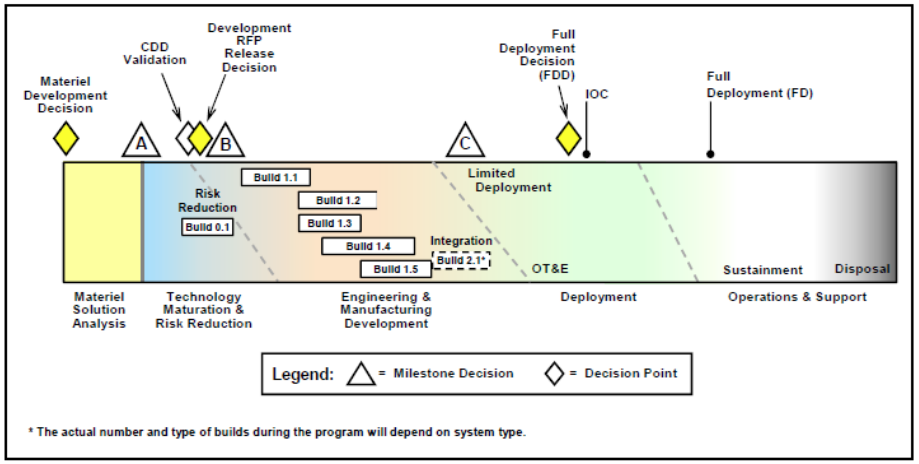


Figure 5. Model 3: Incrementally Fielded Software Intensive Program

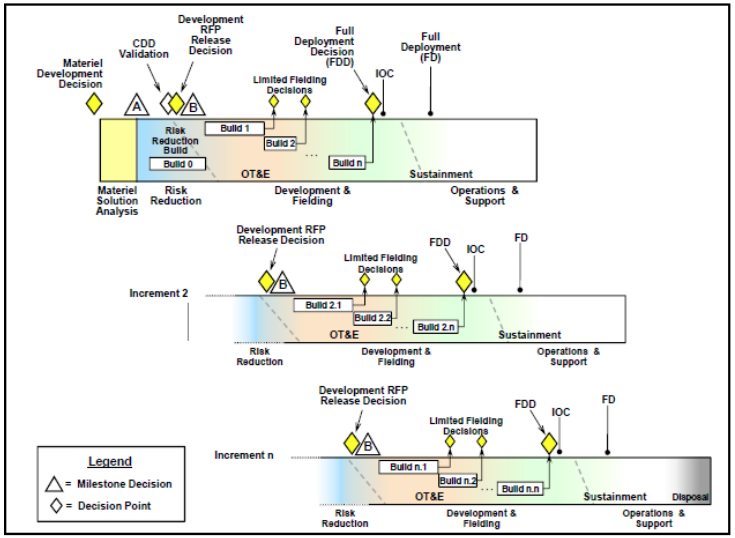
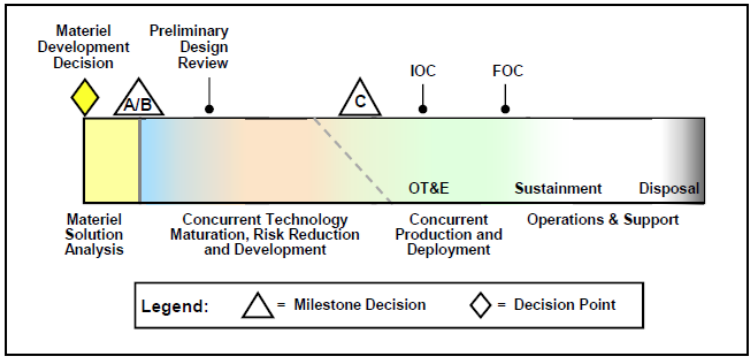


Figure 6. Model 4: Accelerated Acquisition Program



Analysis Vision linked tied to Development / Back-end Vision

Questions?

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